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BORZOUYEH, AN ANCIENT PERSIAN PHYSICIAN WHO FIRST REPORTED UTERINE CONTRACTIONS IN NORMAL VAGINAL DELIVERY

BORZOUYEH, STAROPERZIJSKI LIJEČNIK KOJI JE PRVI IZVIJESTIO O KONTRAKCIJI MATERNICE KOD PRIRODNOG, VAGINALNOG PORODA

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Summary

During the final hours of pregnancy, uterine contractions cause the foetus to move through the birth canal and leave the mother's body. Haly Abbas (died 982-994 CE), is believed to be the first writer to explain the role of these contractions. However, this concept had in fact

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been described in the text titled Bab-e-Borzouyeh, *written four centuries earlier by the physician Borzouyeh (Perzoes in Latin) as a prologue to his translation of the Indian collection of fables known as the* Panchatantra. *Because Haly Abbas probably had access to ancient Persian medical texts, the earliest report of uterine contractions may need to be re-attributed to this earlier author.*

Key words: *History of medicine; ancient era; Persian medicine; Borzouyeh; obstetric, uterine contractions.*

Introduction

During the final hours of pregnancy, uterine contractions cause the foetus to move through the birth canal and leave the mother's body [1]. Although the Greek physician, Soranus of Ephesus (1st-2nd century AD) description of "pain" during labour and pre-labour can be considered as a preliminary mention of uterus contractions [2]; initially, it was hypothesized that neonates leave the uterus by their own effort [3]. In contrast to this idea, the renowned Persian physician *Ali ibn Abbas al-Majusi* (died 982-994 CE), known in Western countries as Haly Abbas [4], believed that the foetus leaves the mother's body as a result of contractions of her uterus. He clearly described this process in his medical book *Al-Maliki*, known as the *Liber Regius,* which is believed to be the oldest printed description of uterine contractions during the birth process [3,5]. He was a contemporary of great Persian and Muslim physicians such as Rhazes (865-925 AD), Avicenna (980-1032 AD) and Akhawayni (?-983 AD) during the Islamic Golden Age (9-12th century AD) [6-8]. Haly Abbas was active in Shiraz and Ahvaz (Persia), where medical knowledge was highly developed [9, 10]. Although most of ancient Persian (pre-Islamic) scientific evidence has been destroyed during time, remaining texts point out the existence of advanced medical sciences, in particular during the Sassanid Period (224-637 CE) [11, 12]. For instance Jondishapour (in SouthWestern Iran) had the greatest medical center during this period and early Islamic era, with established schools and hospitals [13]. Jondishapour hospital and University was created by Sassanid kings and was open to all scientists with any religions, believes and also nations. This scientific and open atmosphere as well as the support of Persian kings from knowledge led to grow noble physicians [14]. It must have been there that Haly Abbas had access to ancient Persian medical texts, and thus it seems that he was the first to include the description of uterine contractions by earlier physicians in his own medical writings. In this paper, an older document was written by Borzouyeh about the role of uterine contraction in normal vaginal delivery is introduced.

Borzouyeh and his points of view about Normal Vaginal Delivery

Only a few remaining documents have come down to us about Persian medical knowledge in the pre-Islamic era, before 637 AD [15]. One of these documents is *Bab-e-Borzouyeh*, a prologue to Borzouyeh's Pahlavic (Middle Persian) translation of the Indian manuscript known as the *Panchatantra* [16]. Interestingly, Borzouyeh's prologue to this collection of fables includes his autobiography along with his views on philosophy, medicine and medical ethics issues [17].

Borzouyeh (*Borzūya*) who is called Perzoes in Latin was a famous physician who was coeval with Khosrow I (Figure 1), the Sassanid king of ancient Persia who ruled from 531 to 579 CE [13]. Borzouyeh was encouraged to learn medicine when he was 7 years old, and he became a great scientist who was deeply involved with medical ethics [15, 16]. He worked at Jondishapour University as head of the royally sanctioned professional association for physicians for the entire Persian Empire (*dorostpād*) [14, 18].

Borzouyeh travelled to India for research, and brought back with him many Sanskrit books which he translated into Pahlavic. One of these books was the *Panchatantra*. This book was later translated from Pahlavic to Arabic by Ibn al-Muqaffa (724 – 760 CE) under the title *Kalila and Dimna* in Islamic era [16]. Regarding, it escaped the destruction and accessible nowadays.

According to the Persian translation of *Kalila and Dimna* by Monshi in the 12th century CE, Borzouyeh presents the medical knowledge of his time about embryogenesis, foetal development and the process of delivery in his *Bab-e-Borzouyeh* [17]. Why he chose to place his description of uterine contractions in a prologue to a literary work rather than in a separate medical text may be related to his efforts to explain the philosophy of life and creation, especially regarding the fatalism of birth. He first briefly explains the fusion of the male and female gametes to form the zygote, the process of organogenesis, and the anatomical position of the foetus in the uterus. He then notes that contraction ("wind") of the uterus during vaginal delivery forces the neonate to move upside down, leading the neonate into the birth canal and pushing it outward [17]. The original text is: "It is mentioned in medical books that when the water that is the origin of human creation [semen] reaches the uterus, it blends with woman water [ovum] and becomes dark and dense. Then a wind will be created which moves it until it looks like whey, then like yoghurt. Then body organs will be formed. The face of the

Figure 1. Presentation of *Kalila and Dimna* to Khosrow I, the Sassanid king who ruled Persia from 531 to 579 CE (a picture of *Shahnameh Tahmasbi* (Tahmasbi's Persian Book of Kings)

boy is toward the back of mother and the girl's is toward mother's abdomen. Hands are on forehead and chins on knees. Around the baby is contracted like it is wrapped in a fastened bag ..... When its delivery time, a wind dominates the uterus and leads to move the baby, forcing the head towards the birth canal and .... [17]" In Persian language, wind can mean contraction. For example, when a wind dominates the abdomen, it means contractions and pain have occurred.

Conclusion

Although Borzouyeh built his theory on older Persian medical textbooks [17], his report is apparently the oldest extant printed document in medical history that describes uterine contractions and their role in normal vaginal delivery. Prior to his writings, physicians mostly believed that neonates leave the uterus by their own effort. Only few physicians described signs such as pain during normal vaginal delivery that can only be considered as preliminary understanding of uterus contractions. Although contractions lead to pain during normal vaginal delivery, these reports by Greek physicians can only be considered as a description without actually understanding function or cause. Therefore, the first definition of the physiology of uterus contractions can be attributed to ancient Persians.

It is obvious that great scientific achievement of Islamic physicians depends on the exchange of information united effort of ancient civilizations. Therefore Islamic medicine has a root in ancient Persian, Indian, Chinese and even Roman and Greek medicine [19]. Knowledge about uterine contraction and its role in normal vaginal delivery seems to be another example among other findings of Muslim physicians which has been based on their knowledge from ancient Persian medicine and was confirmed by their own practice.

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Sažetak

Kontrakcije maternice u zadnjim satima trudnoće uzrokuju prolaz ploda kroz porođajni kanal i napuštanje majčinog tijela.

Smatra se kako je Haly Abbas (u. 982–994) prvi koji je opisao ulogu tih kontrakcija. Međutim ovaj je pojam četiri stoljeća ranije zapravo opisao liječnik Borzouyeh (lat. Perzoes) u tekstu naslovljenu Bab-e-Borzouyeh, uvodu njegova prijevoda Panchatantre,zbirke indijskih basni. Budući da je Haly Abbas vjerojatno imao pristup staroperzijskim medicinskim tekstovima, prvo izvješće o kontrakcijama maternice trebalo bi biti priznato starijem autoru.

Ključne riječi: *povijest medicine; stari vijek; perzijska medicina; Borzouyeh; opstetricija; kontrakcije maternice.*